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09/353,777	07/15/1999	HIROYUKI KAGAWA	500.37406X00	4076

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EXAMINER

QI, ZHI QIANG

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/353,777

Applicant(s)

KAGAWA ET AL.

Examiner

Mike Qi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-29 is/are allowed.
- 6) ☒ Claim(s) 1,3,5 and 6 is/are rejected.
- 7) ☒ Claim(s) 2,4 and 7-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

The examiner made a typing mistake in the previous office action for the 35 USC 103 rejection in which the reference cited patent number should be US 6,229,586 (Date et al). The rejection is according to the US 6,229,586 (Date et al), even though the number typing was wrong, but the reference was Date et al and the number should be US 6,229,586, therefore, the reference US 6,229,586 (Date et al) is not new art cited now.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,229,586 (Date et al).

Claim 1, Date discloses (col.3, line 55 – col.4, line 14; Fig.2) a reflection-type liquid crystal device comprising a pair of glass substrates (22, 23), a liquid crystal layer (25) sandwiched between the pair of substrates (22, 23), and a light reflector section (the section including a polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made of metal such as silver) provided between the liquid crystal layer (25) and the substrate (23).

Art Unit: 2871

Date does not expressly disclose the light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface.

However, Date discloses that polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made of metal such as silver are laminated so as to form a light reflector section. The polyimide orientation film (36) is a polymeric medium layer and the reflection film (33) is made of silver as the silver particles having a high reflectivity. Therefore, a light reflector section including a polymeric medium layer such as the polyimide orientation film and laminated with a fine silver reflector (precipitated on the surface that means the silver particles must be laminated to the surface) would have been obvious as the fine silver particles would increase the reflectance because the silver particles having high reflectivity.

Therefore, it would have been obvious to those skilled in the art to use a light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface as claimed in claim 1 for achieving higher reflectance.

Claim 3, "the surface of the polymeric medium at the light reflector section controls orientation of liquid crystal molecules in the liquid crystal layer" means the function of the material polymeric medium is an orientation film, and Date discloses (col. 4, lines 8-14) that the orientation film (36) is made by rubbing a polymeric film such as polyimide. Therefore, using polymeric medium material such as polyimide to control the orientation of the liquid crystal molecules in the liquid crystal layer as claimed in claim 3 would have been at least obvious.

Art Unit: 2871

Claim 6, Date discloses (col. 3, line 55 – col.4, line 7; Fig.2) that a color filter (29) (The Fig.2 shows the reference number 39 is the color filter, but the reference number for the color filter must be 29 according to the specification.) provided between the substrate (22) and the liquid crystal layer (25) for achieving the color display.

3. Claim 5 and the claim 10 dependent on claim 1 (claim 10 is a multiple dependent claim) are rejected under 35 U.S.C. 103(a) as being unpatentable over Date as applied to claims 1, 3 and 6 above, and further in view of Us 6,219,120 (Sasaki et al).

Claim 5, to arrange the color filter between the light reflector section and the liquid crystal layer for achieving the color display would have been at least an obvious variation. Sasaki discloses (col. 11, lines 2-7; Fig.2) that the color filter (16) is provided between the light reflector member (25) and the liquid crystal layer (13), and such color filter with the corrugations to attain a superior display quality.

Claim 10 dependent on claim 1, Sasaki discloses (col.13, lines 20-29; Fig.2) that the reflector member (25) having corrugated surface (25a) (functions as a light scattering layer for scattering the light reflected at the light reflector section), so that the reflecting efficiency is improved and a bright display is provided. Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange a scattering layer for scattering the light at the light reflector section as claimed in claim 10 dependent to claim 1 for achieving a bright display.

***Allowable Subject Matter***

4. Claims 2, 4, 7-9, 10 dependent on claims 7 or 8 (claim 10 is a multiple dependent claim), 11-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 18-29 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a reflection-type liquid crystal device and a manufacture process comprising various elements and steps, more specifically, as the following:

the polymeric medium is composed of a silver-containing polyimide, and the polyimide containing the fine silver particles formed by reduction of monovalent silver [claim 2];

the reflector section is provided between the electrode layer and the liquid crystal layer [claim 4];

the light reflector section has a light reflector layer formed from a silver-containing photosensitive polymeric medium according to a photolithographic process, and the light reflector layer contains the fine silver particles so precipitated as to give electrical conduction through their mutual contact [claim 7];

Art Unit: 2871

the polymeric medium at the light reflector section contains fine non-conductive particles which give a light scaterability to the surface of the polymeric medium [claim 11];

the manufacture of making process comprising applying mixture containing monovalent silver and photosensitive polymeric medium, exposing the mixture to light, and precipitating fine silver particles on the surface of the light reflector layer [claims 18-19].

The closest references US 6,229,586 (Date et al), US 6,219,120 (Sasaki et al) and US 6,414,734 (Shigeta et al) disclose a reflection-type liquid crystal display device having laminated reflector section (polyimide orientation film and reflection film) in which the reflection film is made of silver and the polyimide orientation film control the orientation of the molecules. However, the prior art of record do not disclose the silver-containing polyimide forming the light reflector layer and using mixture containing monovalent silver and the photosensitive polymeric medium (polyimide) forming the light reflector layer.

Note: claim 10 is a multiple dependent claim. The claim 1 is under the rejection above. Therefore, the claim 10 according to claim 1 is rejected, but the claim 10 according to claim 7 or 8 is objected since the claim 7 is objected above.

### ***Response to Arguments***

7. Applicant's arguments filed on Apr.21, 2003 have been fully considered but they are not persuasive.

Applicant's **only** arguments are as follows:

1) The reference Date's disclosure never mentions silver for use as a metallic reflection material; and Date's evaporation would not result in particles, but instead would result in a solid metallic film; and Date's metallic reflection film (33) are not polymeric medium layers.

2) The reference Date's reflection film (33) is not formed on the surface of the polyimide orientation film (36), and the polyimide film (36) as a polymeric medium layer does not include fine silver particles.

3) According Applicant's invention, the reflector section is formed by the polymeric medium including the fine silver particles, and the fine silver particles are ultimately precipitated on the surface of Applicant's polymeric medium layer (8) by a baking process applied to the polymeric medium layer (8) at a certain temperature.

Examiner's responses to Applicant's **only** arguments are as follows:

1) The reference Date's disclosure mentions (col.4, lines 12-14) that the metallic film (33) is made of metal such as silver, i.e., using silver as a metallic reflection material. The reference Date discloses (col.4, lines 2-14) that a polyimide orientation film (36), electrode (35), organic film (32), and a metallic reflection film (33) made of metal such as silver are laminated, and the reference Date does not limit the lamination is evaporation. Therefore, the reflector section would contain polymeric medium and silver material, and the silver material must be constituted of silver particles.

2) The reference Date's reflection film (33) is not directly formed on the surface of the polyimide orientation film (36), but it is formed on the surface of the polyimide



Art Unit: 2871

orientation film (36). Although the polyimide film (36) as a polymeric medium layer does not include fine silver particles, but according to the limitation claimed in claim 1 that the reflector section including a polymeric medium layer and laminated with the metallic reflection film disclosed in the reference Date so that the reflector section including the silver material, and the silver material must have silver particles.

3) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the reflector section is formed by the polymeric medium including the fine silver particles, and the fine silver particles are ultimately precipitated on the surface of Applicant's polymeric medium layer (8) by a baking process applied to the polymeric medium layer (8) at a certain temperature.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2871


TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi  
May 14, 2003

  
ROBERT H. KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800